

This Page Is Inserted by IFW Operations
and is not a part of the Official Record

BEST AVAILABLE IMAGES

Defective images within this document are accurate representations of the original documents submitted by the applicant.

Defects in the images may include (but are not limited to):

- BLACK BORDERS
- TEXT CUT OFF AT TOP, BOTTOM OR SIDES
- FADED TEXT
- ILLEGIBLE TEXT
- SKEWED/SLANTED IMAGES
- COLORED PHOTOS
- BLACK OR VERY BLACK AND WHITE DARK PHOTOS
- GRAY SCALE DOCUMENTS

IMAGES ARE BEST AVAILABLE COPY.

**As rescanning documents *will not* correct images,
please do not report the images to the
Image Problem Mailbox.**

REMARKS

The allowance of claims 5, 8, 23-25 and 29 and the indication that claims 11, 17-20, 22 and 30 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims, are acknowledged. Additionally, the indication that claims 14 and 33 would be allowable if rewritten to overcome the rejections under 35 U.S.C. §112, second paragraph, and to include all of the limitations of the base claim and any intervening claims, and that claims 26-27 would be allowable if rewritten or amended to overcome the rejections under 35 U.S.C. §112, second paragraph, are acknowledged.

Turning first to the objection to claims 11, 17-20, 22 and 30 as being dependent upon a rejected base claim, applicants note that claim 22 depends from allowed claim 5, such that applicants submit that claim 22 should now be in condition for allowance. With respect to claims 11, 17-20 and 30, such claims have been retained in dependent form at this time, since applicants submit that the parent claims and therewith the dependent claims should now be in condition for allowance in light of amendments presented herein.

With respect to the rejection of claims 14, 26-27 and 33 under 35 U.S.C. §112, second paragraph, as lacking antecedent basis for the features recited as indicated by the Examiner in section 8 at page 6 of the Office Action, applicants note that by the present amendment, such claims have been amended in a manner which should overcome the points raised by the Examiner. Accordingly, applicants submit that claims 14 and 33 which are dependent claims, are now in compliance with 35 U.S.C. §112, second paragraph, and should be in condition for allowance together with the parent claims thereof.

As to claims 26 and 27, applicants submit that such claims have been amended to overcome the lack of antecedent basis noted by the Examiner as well as

to correct other minor informalities and thus, claims 26 and 27 should now be in compliance with 35 U.S.C. §112, second paragraph, second paragraph. Since claims 26 and 27 are in independent form, applicants submit that such claims should now be in condition for allowance.

By the present amendment, in addition to the amendments of the claims as discussed above, independent claims 1, 2, 3, 4 and 28 have been amended to clarify the feature that a light-emitting portion is formed on a measurement-use sample of the sample to be processed. Furthermore, other claims which are in dependent form have been amended to clarify features thereof.

As to the rejection of claims 1-4 and 12 under 35 U.S.C. 102(b) as being anticipated by Tendys et al (2-1987); the rejection of claims 1-4, 6-7, 9-10, 12, 15, 21, 28 and 31 under 35 U.S.C. 102(b) as being anticipated by Ejima et al (1-1974); the rejection of claims 13, 16 and 32 under 35 U.S.C. 103(a) as being unpatentable being over Ejima et al; and the rejection of claim 13 under 35 U.S.C. 103(a) as being unpatentable over Tendys; such rejections are traversed insofar as they are applicable to the present claims, and reconsideration and withdrawal of the rejections are respectfully requested.

At the outset, as to the requirements to support a rejection under 35 U.S.C. 102, reference is made to the decision of In re Robertson, 49 USPQ 2d 1949 (Fed. Cir. 1999), wherein the court pointed out that anticipation under 35 U.S.C. §102 requires that each and every element as set forth in the claim is found, either expressly or inherently described in a single prior art reference. As noted by the court, if the prior art reference does not expressly set forth a particular element of the claim, that reference still may anticipate if the element is "inherent" in its disclosure. To establish inherency, the extrinsic evidence "must make clear that the missing descriptive matter is necessarily present in the thing described in the reference, and that it would be so recognized by persons of ordinary skill." Moreover, the court

pointed out that inherency, however, may not be established by probabilities or possibilities. The mere fact that a certain thing may result from a given set of circumstances is not sufficient.

With regard to the requirements to support a rejection under 35 U.S.C. 103, reference is made to the decision of In re Fine, 5 USPQ 2d 1596 (Fed. Cir. 1988), wherein the court pointed out that the PTO has the burden under §103 to establish a prima facie case of obviousness and can satisfy this burden only by showing some objective teaching in the prior art or that knowledge generally available to one of ordinary skill in the art would lead that individual to combine the relevant teachings of the references. As noted by the court, whether a particular combination might be "obvious to try" is not a legitimate test of patentability and obviousness cannot be established by combining the teachings of the prior art to produce the claimed invention, absent some teaching or suggestion supporting the combination. As further noted by the court, one cannot use hindsight reconstruction to pick and choose among isolated disclosures in the prior art to deprecate the claimed invention.

Furthermore, such requirements have been clarified in the recent decision of In re Lee, 61 USPQ 2d 1430 (Fed. Cir. 2002) wherein the court in reversing an obviousness rejection indicated that deficiencies of the cited references cannot be remedied with conclusions about what is "basic knowledge" or "common knowledge".

The court pointed out:

The Examiner's conclusory statements that "the demonstration mode is just a programmable feature which can be used in many different device[s] for providing automatic introduction by adding the proper programming software" and that "another motivation would be that the automatic demonstration mode is user friendly and it functions as a tutorial" do not adequately address the issue of motivation to combine. This factual question of motivation is immaterial to patentability, and could not be resolved on subjected belief and unknown authority. It is improper, in determining whether a person of ordinary skill would have been led to this combination

of references, simply to "[use] that which the inventor taught against its teacher."... Thus, the Board must not only assure that the requisite findings are made, based on evidence of record, but must also explain the reasoning by which the findings are deemed to support the agency's conclusion. (emphasis added)

Applicants note that as described at pages 3 and 4 of the substitute specification, the first and second known methods as described for measuring the potential difference on the semiconductor wafer inside the plasma reactor have disadvantages as described. Thus, in accordance with the present invention for measuring the potential differences for plasma processing with the plasma processing apparatus that processes a sample by introducing gas into a vacuum chamber and generates plasma, a light-emitting portion is formed on a measurement sample as illustrated in Figures 2 and 3 of the drawings of this application. As described at pages 5 and 6 of the substitute specification, to measure the plasma potential difference, the circuit resistance value of a light-emitting diode needs to be greater than an external circuit resistance, including the plasma, or, to measure the plasma current, the circuit resistance value of the light-emitting diode needs to be smaller than the above-mentioned external circuit resistance value and since the method requires only a window for measuring light intensity, lead wires or lead wire lead-internals are not required. Thus, a feature of the present invention is that the light-emitting portion in the form of a light emitting diode, for example, is arranged directly or formed on a sample to be processed such as a semiconductor wafer is exchangeable with the wafers to be processed in the manner as described in connection with Figures 10 and 11, for example. By utilization of the present invention, a potential measurement on a semiconductor wafer (a process surface) or current measurement on the semiconductor wafer during plasma processing of the semiconductor wafer can be appropriately carried out and since it is unnecessary to provide connection led wires to acquire detection signals, a reduction in high frequency noise is obtainable. As noted above, each of independent claims 1 - 4

and 28, the only independent claims under rejection over cited art have been amended to clarify the feature that the light-emitting portion is formed on a measurement-use sample of the sample to be processed, as represented by a semiconductor wafer as illustrated in this application. Applicants submit that such feature in conjunction with the other features of the independent and dependent claims of this application patentably distinguish over the cited art as will become clear from the following discussion.

Turning to Tendys et al, the Examiner contends that this document discloses an electrostatic double probe employing a LED diode inside the plasma processing chamber. Irrespective of this disclosure of Tendys et al, applicants submit that Tendys et al, in the sense of 35 USC 102 as well as 35 USC 103, fails to disclose or teach the formation of a light-emitting portion on a measurement-use sample of the sample to be processed, as claimed, with it being apparent that the electrostatic double probe of Tendys et al does not represent a sample to be processed which is in the form of a semiconductor wafer or the like to be processed within the vacuum chamber. Thus, applicants submit that Tendys et al represents the prior art methods as described in the specification of this application and has the attendant disadvantages thereof and such document fails to disclose or teach the claimed features as set forth in the independent and dependent claims of this application in the sense of 35 USC 102 and/or 35 USC 103. Accordingly, all claims patentably distinguish over Tendys et al and should be considered allowable thereover.

With respect to Ejima et al, the Examiner indicates that this document discloses the monitoring of plasma potential using a plasmascope which is comprised of a matrix of 49 wires which are individually connected to a series of FET circuits which are individually connected to a series of LEDs. Irrespective of such disclosure of Ejima et al, applicants submit that there is no disclosure or teaching in Ejima et al, in the sense of 35 USC 102 and/or 35 USC 103, of having a light-

emitting portion formed on a measurement-use sample of the sample to be processed, as recited in independent claims 1 - 4 and 28 and the dependent claims thereof. While the Examiner contends that the "unit is fabricated on a printed circuit board (i.e.,-the substrate to be processed)," it is apparent that such represents a mischaracterization of the plasmascope, as described, and necessarily requires a plurality of wires with the attendant disadvantages thereof. Thus, applicants submit that the independent and dependent claims recite features not disclosed by Ejima et al in the sense of 35 USC 102, nor rendered obvious by the disclosure of Ejima et al in the sense of 35 USC 103. See, in Re Robertson, supra, which points out that each claimed feature must be found in the single reference and it is apparent that Ejima et al fails to provide each of the claimed features as recited. Thus, applicants submit that all claims patentably distinguish over Ejima and should be considered allowable thereover.

With regard to the rejections based under 35 USC 103 with respect to both Tandys et al and Ejima et al, applicants note that the Examiner has recognized that the recited features are not disclosed by the cited art and suggest that it would be obvious to provide the same as being conventional. This position by the Examiner represents the principal of "obvious to try" which is not the standard of 35 USC 103. See, In re Fine, supra, and with respect to features being well known or the like, this position by the Examiner has been rejected by the Court in the decision of In re Lee, supra. Thus, applicants submit that the Examiner has recognized the deficiency of the cited art and has improperly attempted to avoid citing art to overcome the deficiencies which are at least recognized by the Examiner. Thus, applicants submit that the independent and dependent claims of this application also patentably distinguish over the cited art in the sense of 35 USC 103 and all claims should be considered allowable thereover.

Applicants note that submitted herewith is a corrected Figure 25A -25C in accordance with the proposed amendment to the drawings submitted with the substitute specification.

In view of the above amendments and remarks, applicants submit that all claims present in this application should now be in condition for allowance and issuance of an action of a favorable nature is courteously solicited.

To the extent necessary, applicants petition for an extension of time under 37 CFR 1.136. Please charge any shortage in the fees due in connection with the filing of this paper, including extension of time fees, to the deposit account of Antonelli, Terry, Stout & Kraus, LLP, Deposit Account No. 01-2135 (Case: 520.39581X00), and please credit any excess fees to such deposit account.

Respectfully submitted,

ANTONELLI, TERRY, STOUT & KRAUS, LLP



Melvin Kraus
Registration No. 22,466

MK/cee/jla
(703) 312-6600